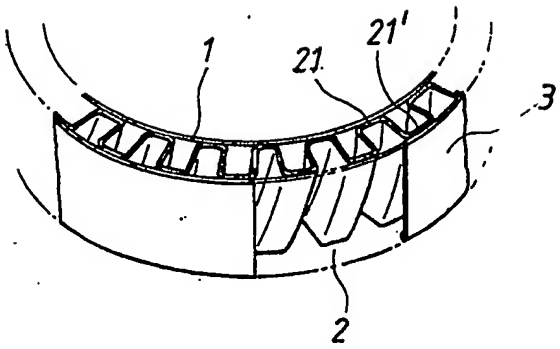

Fig. 4

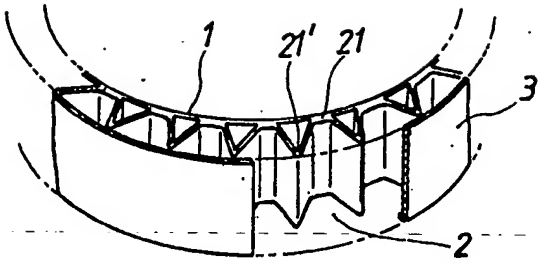

Fig. 5

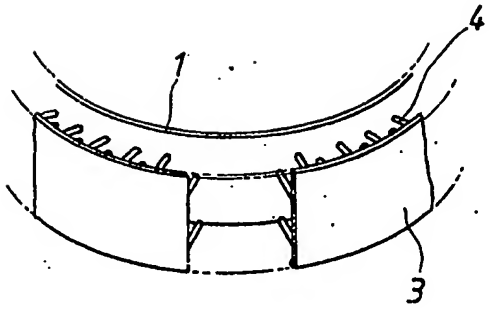

Fig. 6

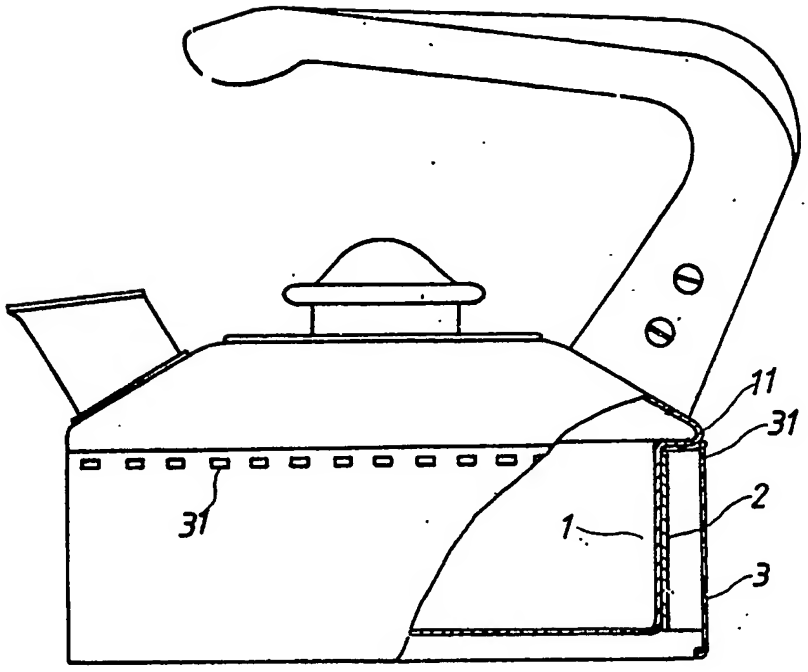

Fig. 1

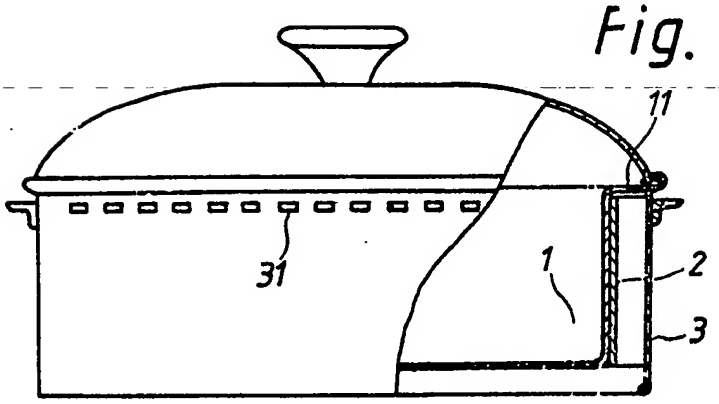

Fig. 2

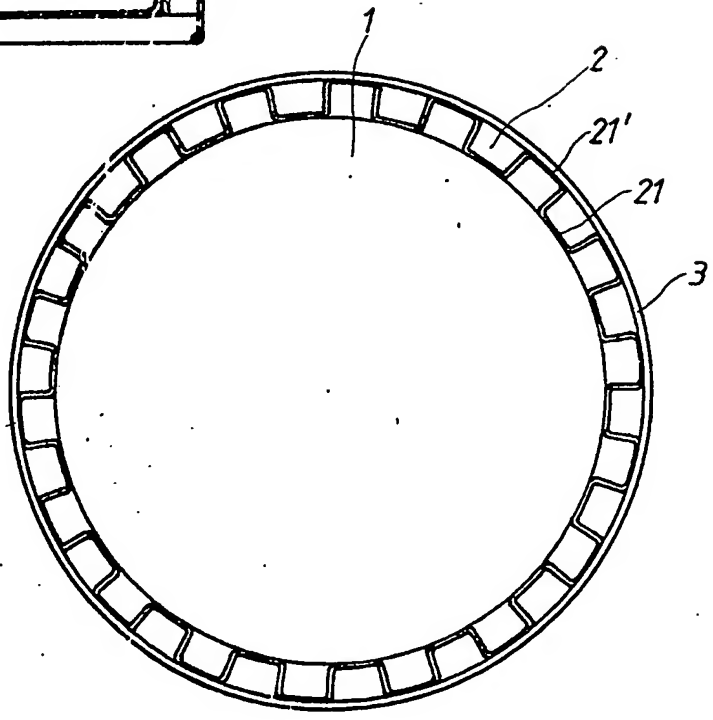

Fig. 3

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(54) Cooking utensil

(57) A cooking utensil, e.g. a kettle has a body 1 surrounded by a skirt 3. The skirt 3 is spaced from the body 1 and a heat conducting medium 2 extends across the space.

When the body 1 is placed on a flame, the bottom of the body 1 is heated directly and also heat from the flame or hot air, rising up the sides of the body 1 and constrained by the skirt 3, is absorbed by the heat conducting medium and transferred to the body 1. In this way, the heat is used more efficiently as both the sides and the bottom of the body 1 are heated. This results in more rapid heating of material in the body. A lip 11 seals the top of the gap between the body 1 and the skirt 2 and waste hot air escapes through vents 31. The utensil may also be a saucepan or frying pan.

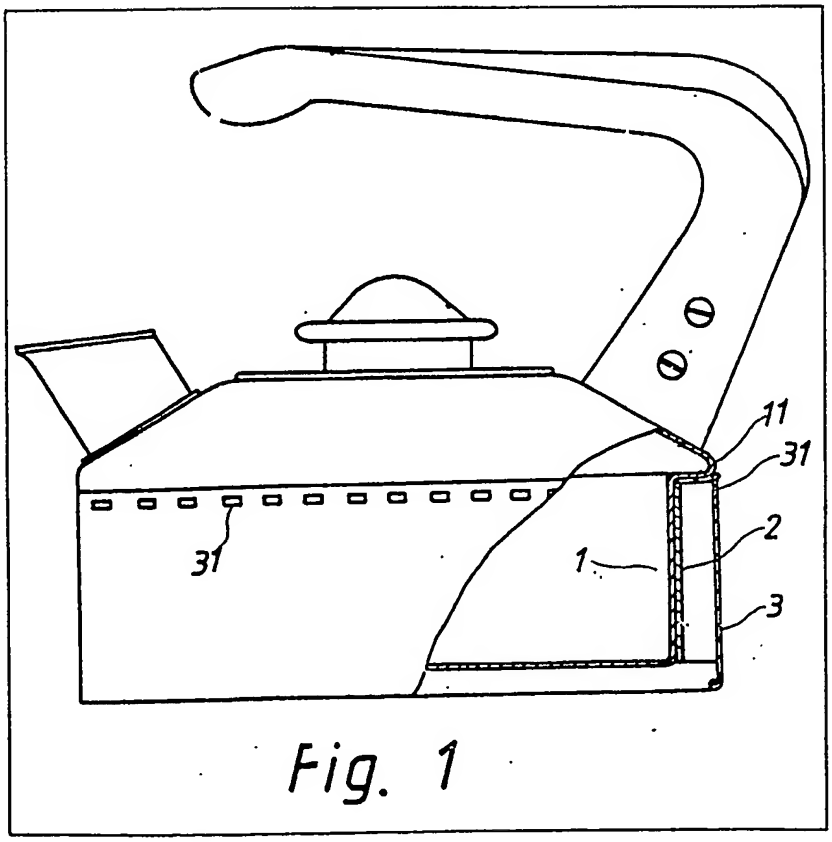

Fig. 1

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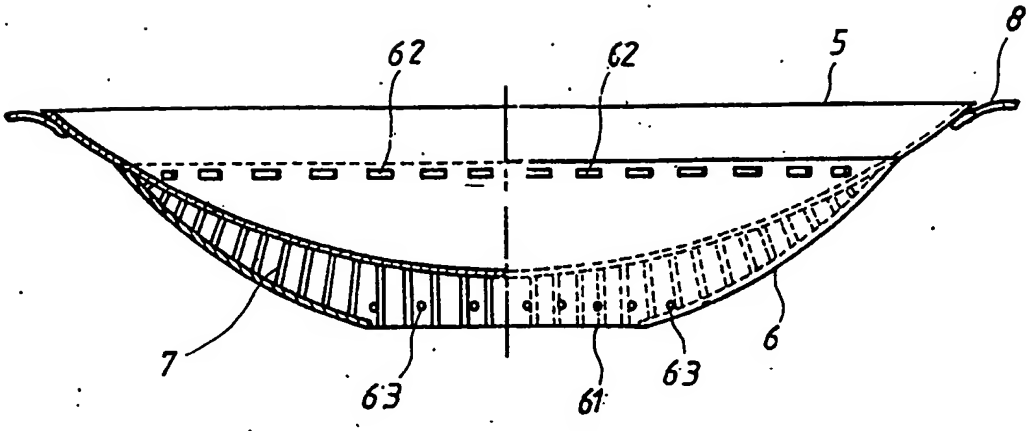

Fig. 7

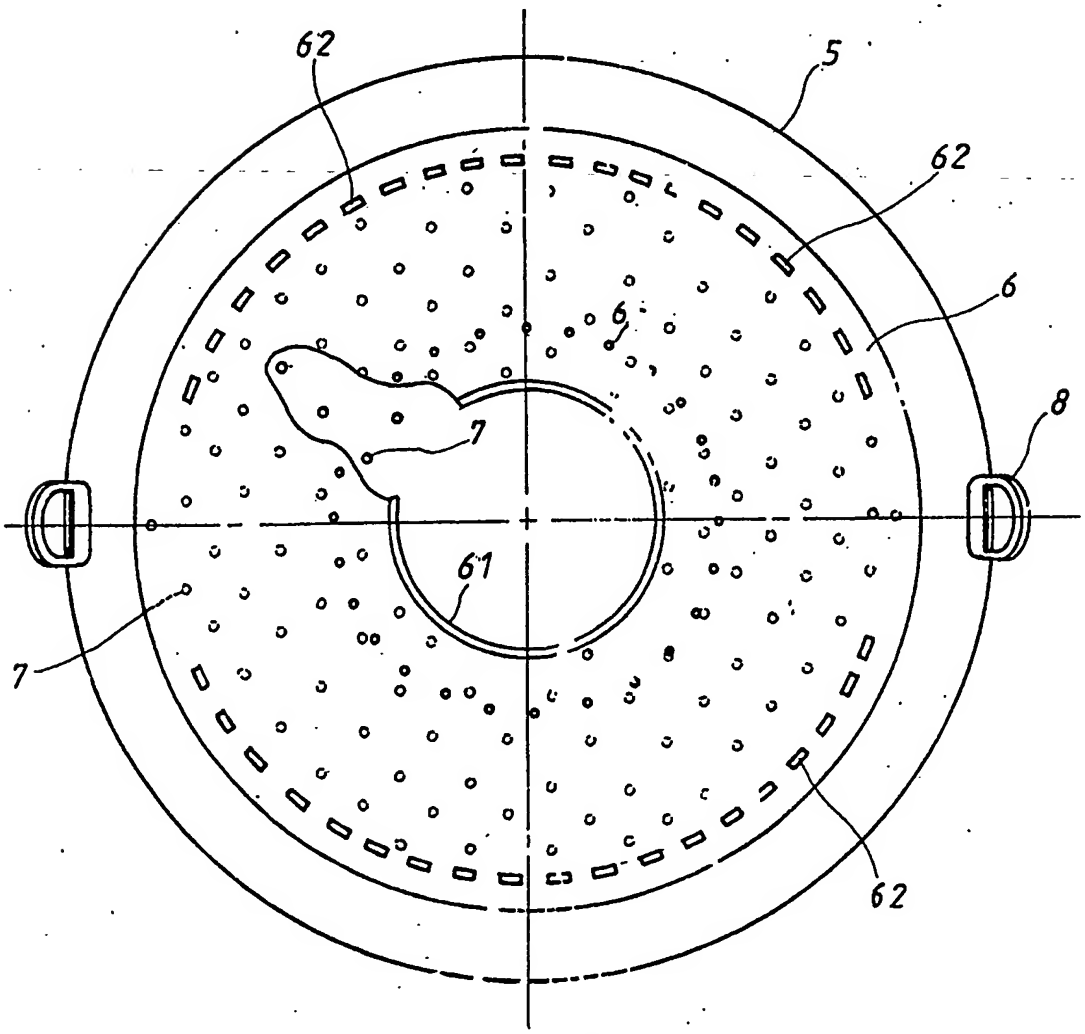

Fig. 8

SPECIFICATION
Cooking utensil

The present invention relates to a cooking utensil adapted to be heated by the direct application of a flame. Examples of such utensils are kettles, saucepans and frying pans for use on a gas cooker.

Such cooking utensils generally have a body with a flat bottom, usually circular in shape which receives the direct heat of the flame. The disadvantage of this arrangement is that only the bottom of the utensil is heated by the flame. Flame or hot air rising up the sides of the utensil have little heating effect. Thus conventional utensils, kettles, saucepans, frying pans have a low thermal absorption efficiency. Furthermore there may be a waste of gas if the flame is too large because the gas forming the flame passing up the sides of the utensil does not contribute to the heating of the utensil.

The present invention seeks to overcome this problem by providing a skirt extending around the utensil and open adjacent the bottom of the utensil. This skirt traps flame and hot air adjacent the utensil. A heat conducting medium is located between the skirt and the outer wall of the utensil and the flame and hot air between the skirt and the utensil heats this medium. The medium conducts heat to the utensil and in this way less of the heat passing up the sides of the utensil is lost.

Thus, the present invention may provide a cooking utensil with high thermal absorption.

Embodiments of the present invention will now be described in detail, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 shows a side view, partially in section of a first embodiment of the present invention, namely a flat-bottomed kettle;

Fig. 2 shows a side view, partially in section, of a second embodiment of the present invention, namely a flat-bottomed saucepan;

Fig. 3 shows the bottom view of either the first embodiment of Fig. 1 or the second embodiment of Fig. 2;

Fig. 4 shows a perspective sectional view of one form of a heat conduction medium for use in the first or second embodiment of the present invention;

Fig. 5 shows a perspective sectional view of a second form of heat conduction medium for use in the first or second embodiment of the present invention;

Fig. 6 shows a perspective sectional view of a third form of heat conduction medium for use in the first or second embodiment of the present invention;

Fig. 7 shows a side view, partially in section, of a third embodiment of the present invention, namely a frying pan; and

Fig. 8 shows a bottom view of the frying pan shown in Fig. 7.

As shown in Fig. 1, the first embodiment is a flat bottomed kettle has a body 1 surrounded by a skirt 3. A heat conduction medium 2 provided between the body 1 and the skirt 3. The body 1 has a smaller diameter than that of the skirt 3 and has a lip 11 which extends across the gap between the body 1 and the skirt 3. The heat conduction medium 2 around the body 1 is in the form of a ring frame made of a plurality of corrugated thru channels (21, 21') isolated horizontally (see Fig. 3). The skirt 3 is sleeved around the ring frame 2, and abuts against the lip 11 of the body 1.

The skirt extends about 10 mm below the bottom of the body 1, to envelop the flame or hot air before it comes into contact with the bottom of the body. When in use the body is supported over the flame with the bottom edge of the skirt resting on the surrounding parts of the stove.

A plurality of vents 31 are provided on the upper portion of the outer frame 3 and just below the edge, 11 the vents 31 being spaced around the skirt 3. Fig. 2 is generally similar to Fig. 1, except that the utensil is a saucepan, being the second embodiment of the present invention.

When the flat-bottomed kettle of Fig. 1 or the saucepan of Fig. 2 is put on a gas stove to be heated the gas flame not only directly heats the bottom of the body 1, but also spreads around and up the sides of the body 1, so that it is trapped by the skirt 3 adjacent to the side walls of the body. Hot air passes through the channels 21 and 21' of the ring frame 2 and causes additional heating of the utensil. The ring frame 2 is heated by hot air that would otherwise be wasted.

In this way most of the thermal energy of flame is absorbed by the ring frame 2. Finally, the waste gas escapes through the vents 31.

As shown in Fig. 3, the heat conducting medium is a frame 2 in the form of a number of isolated channels 21 extending vertically along the sides of the body 1 of the kettle or saucepan. As shown in Fig. 4, the channels 21 of the ring frame 2 in the second embodiment may be formed into a gradual spiral, or other curves so as to prolong the time the ascending hot air is in contact with the channels, thereby to increase the thermal absorption capacity of the ring frame 2.

As shown in Figs. 1 to 4, the heat conducting medium of the kettle or the saucepan is a ring frame 2, which is fitted between the body 1 and the skirt 3. However, the heat conducting medium 2 may be formed integrally the body 1 or the skirt 3.

The heat conducting medium 2 shown in Fig. 5, is formed integrally with the body 1 as one piece.

Thus the outer surface of the body 1 is formed into a number of corrugated and isolated channels 21 and 21'. The channels 21 formed between the heat conducting member 2 and the skirt 3 are larger than the channels 21' formed between the heat conducting member and the body 1, the latter channels 21' having a triangular cross-section.

Fig. 6 shows an alternative arrangement in which the heat conducting medium 2 is formed by

a plurality of small rods or sticks 4 being suitably disposed around the inner surface of the skirt 3.

These sticks 4 absorb the heat of the ascending flames conduct the heat to the body 1. Again a higher energy absorption is achieved than on standard utensils.

In the third embodiment, shown in Fig. 7, the utensil is a frying pan with a curved bottom surface. The body 5 of the frying pan is made of cast aluminium alloy, with handles 8, and at the bottom of said pan, an outer bottom layer 6 (the skirt) having a thickness ranging from 1 to 3 mm is provided suitably spaced from the frying pan body 5. An opening 61 is provided in the central portion of said outer bottom layer and a number of small sticks 7 (forming the heat conducting medium) are provided. The sticks 7 extend between the pan body 5 and the outer bottom layer 6. In manufacturing such a frying pan, the small sticks 4 may be cast together with the pan body 5 into one piece.

The outer bottom layer 6 is secured to the pan body 5 below the top of that body 5, and a number of vents 62 are provided around the outer bottom layer except in the portions below the handles 8 on both sides. Also around and near the opening 61 in the outer bottom layer 6, a number of apertures 63 are provided spaced apart by a suitable distance.

When the frying pan is put on a gas stove to be heated, the flame of the gas stove will, in addition to heating bottom of the pan body 5, ascend upwards around the pan body 5 and pass between the small sticks 7 due to the presence of the outer bottom layer 6. The heat absorbed by said small sticks 7 is conducted to the frying pan body 5. Since the whole of the bottom of the pan body 5 is heated, rather than just the bottom part, the food in the pan can be heated evenly, and the heating area of the pan is substantially increased, thereby shortening the cooking time. This results in a saving of gas as most of the thermal energy of the flames will be absorbed by the small sticks 7, and the waste gas is vented through the vents 62. The apertures 63 provided at the lower portion of said outer bottom layer 6 are used to watch the burning of the gas, and for supplying air to the flame.

CLAIMS

1. A cooking utensil comprising a body to be heated and a skirt extending around and spaced from the body, the skirt being open adjacent the bottom of the body to receive and constrain flame or hot air between the skirt and the body, there being a solid heat conducting medium within the skirt effective to transfer heat from the constrained flame or hot air to the body.

2. A cooking utensil according to claim 1 wherein the skirt extends below the bottom of the body.

3. A utensil according to claim 1, or claim 2 wherein said heat conducting medium is a ring frame having a plurality corrugations forming channels between the body and the skirt.

4. A utensil according to claim 3, wherein adjacent channels have different widths.

5. A utensil according to claim 3 or claim 4 wherein the channels are straight.

6. A utensil according to claim 3 or claim 4 wherein the channels extend helically around the body.

7. A utensil according to any one of claims 3 to 6 wherein the ring frame is integral with the body.

8. A utensil according to any one of claims 3 to 6 wherein the ring frame is integral with the skirt.

9. A utensil according to claim 1, wherein the heat conducting medium is a plurality of rods extending between the outer surface of the body and the inner surface of the skirt.

10. A utensil according to any one of the preceding claims having a lip extending across the gap between the body and the skirt.

11. A utensil according to claim 10 wherein a plurality of spaces apart vents are provided around the skirt below the lip.

12. A utensil according to any one of the preceding claims, being a frying pan having a curved bottom surface, and a correspondingly curved skirt.

13. A utensil according to claim 12, wherein a plurality of holes are provided in the skirt of the pan around and adjacent the opening therein.

14. A cooking utensil substantially as herein described with reference to and as illustrated in Figs. 1 or 2, as modified by Figs. 3 to 6, or Figs. 7 and 8.

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